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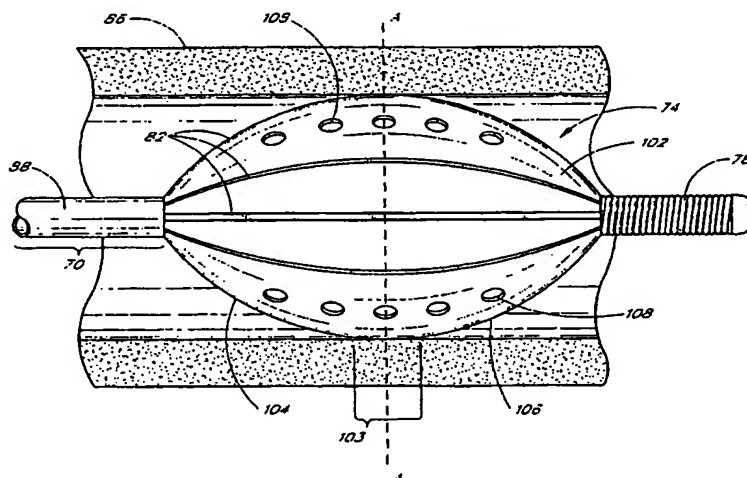
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- (72) Inventors: PATEL, Mukund, R.; 427 Ridgefarm Drive, San Jose, CA 95123 (US). MCGILL, Scott, A.; 129 Hillview Avenue, Redwood City, CA 94062 (US). ZADNO-AZIZI, Gholam-Reza; 8213 Del Monte Avenue, Newark, CA 94560 (US). ERRAZO, Arlene, L.; 953 East Duane Avenue, Sunnyvale, CA 94085 (US).
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
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[Continued on next page]

(54) Title: INTRAVASCULAR DEVICE FOR FILTERING EMBOLI



(57) Abstract: There is provided a filter for use with a vascular occlusion device of the type having an elongated shaft and a number of radially expandable struts located near a distal end of said shaft. The filter comprises a hollow body made of a flexible material, with a proximal end and a distal end, and a region of maximum widthwise dimension located between the proximal end and the distal end. The body tapers from the proximal end to the region of maximum widthwise dimension and from the region of maximum widthwise dimension to the distal end. A number of pores are formed in the body, and the pores being sized to prevent emboli from flowing past the distal end when the filter is employed in the vasculature of a patient. Also disclosed are a web for preventing formation of thrombus on the struts of a vascular occlusion device, and a method for removing accumulated emboli from a filter.

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INTERNATIONAL SEARCH REPORT

Inventional Application No
PCT/US 01/04457

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61F2/01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	W0 99 58068 A (GILSON PAUL ;SALVIAC LTD (IE); VALE DAVID (IE)) 18 November 1999 (1999-11-18) page 10, line 5 -page 11, line 28; figures ---	1,4,6,9, 10,13,16
P,X	W0 00 49970 A (SCIMED LIFE SYSTEMS INC) 31 August 2000 (2000-08-31) page 8, paragraph 3 -page 10, paragraph 1; figures ---	1-17
P,X	W0 01 05329 A (BAFF LLC) 25 January 2001 (2001-01-25) page 8, line 5 -page 9, line 1; figures -----	1,6,7, 9-11,13, 14,16

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

13 June 2001

Date of mailing of the international search report

09.10.2001

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

international application No.
PCT/US 01/04457

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5,6-12,13-1

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-5,6-12,13-17

A filter having a tapering hollow body and a number of pores arranged in at least one row in said body

2. Claims: 18,19,25-30

A vascular occlusion device having a filter comprising two cups whereby the first cup has an opening at its proximal end and the second cup having an opening at its distal end and the first cup having pores which are smaller in diameter than the pores in the second cup and a distal tip comprising a coil

3. Claims: 20-24

A vascular occlusion device comprising a shaft and a filter suspended on radially expandable struts attached to the shaft and a web attached to the distal end of the shaft and a distal tip comprising a coil

4. Claims: 31-39

A vascular occlusion device comprising a shaft, a core wire disposed in the lumen of said shaft and a core-wire mechanism which is attached at its ends to the shaft and the core wire and longitudinally or rotationally movable between a radially collapsed and expanded position and a filter membrane suspended on said mechanism

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9958068	A	18-11-1999	AU 4055799 A EP 1077649 A2 WO 9958068 A2	29-11-1999 28-02-2001 18-11-1999
WO 0049970	A	31-08-2000	US 6171327 B1 EP 1073383 A1 WO 0049970 A1	09-01-2001 07-02-2001 31-08-2000
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		AU 6346300 A 05-02-2001	
		WO 0105329 A1 25-01-2001	
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